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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,363	12/11/2001	Josef Burg	20805	1126

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EXAMINER	
SCHNIZER, HOLLY G	

ART UNIT	PAPER NUMBER
1653	

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/014,363	Burg et al.	
	Examiner	Art Unit	
	Holly Schnizer	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *18-23 and 26-30* is/are allowed.

6)☒ Claim(s) *1-17,24,25 and 31-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/25/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

The amendment filed March 4, 2005 has been entered and considered. Claims 26-33 have been added. Therefore, Claims 1-33 are pending.

Specification—Objection Withdrawn

The objection to the Specification for failing to comply with the sequence rules is withdrawn in light of the amendment to the Specification to add sequence identifiers and the submission of a sequence listing.

Claim Objections--Withdrawn

The objection of Claims 10, 21, 24, and 25 because they refered to sequences by figure number rather than by sequence identifier (SEQ ID NO:) is withdrawn in light of the amendment of the claims.

Rejections Withdrawn

The rejection of Claims 4-7 under 35 U.S.C. 112, second paragraph as being unclear as to the metes and bounds of "about" is withdrawn in light of Applicants arguments.

Rejections Maintained

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

Claims 1-17 and 31-33 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,583,272 (the '272 patent) for reasons cited in the previous Office Action (mailed 12/3/04) and incorporated by reference herein.

Applicants argue that the '272 patent does not teach an EPO that is monopegylated only at α-amino groups and that the '272 patent is not a 102 reference because the process disclosed therein does not yield homogenous erythropoietin (EPO) species that is monopegylated at only α-amino groups. Applicant argues that the current invention is directed to a certain species within the broader genus of the '272 patent and that species are patentable over the genus (citing In re Baird 29 USPQ2d 1550, 1552 (CAFC 1994) to their contention).

This argument has been considered but is not deemed persuasive for the following reasons. The present claims are drawn to a conjugate that is identical to one disclosed in the '272 patent. As admitted by Applicants (last 2 lines of p. 15 of response filed 3/4/05), the '272 patent teaches a monopegylated EPO species. The '272 patent states, "...primarily the mono-pegylated species is produced. The pegylated EPO can be administered as a mixture, or as the cation exchange chromotagraphy separated different pegylated species." (Col. 7, lines 17-20). Thus, the '272 patent teaches a conjugate identical to that of the present claims. With regard to the reference to In re Baird, 29 USPQ2d 1550, 1552 (CAFC 1994)) to support Applicants assertion that species are patentable over a broader genus, the present issue at hand is one of

anticipation and not of obviousness as was the case in In re Baird. The examiner has shown that the '272 patent teaches an EPO mono-pegylated conjugate identical to that of the present claims. Moreover, the '272 patent teaches that "mono-PEG conjugates of erythropoietin glycoproteins are desirable because they tend to have higher activity than di-PEG conjugates" (Col. 8, lines 19-21). Thus, not only does the '272 patent disclose the mono-pegylated EPO species of the present claims, it teaches that the mono-pegylated species is preferable.

New Claims 31-32 are added to the rejection because the '272 patent teaches that m of the formula disclosed therein can be 450-900 which is within the range taught in the present claims. New Claim 33 (identical to original claim 7 except for the deletion of "about") is rejected because the '272 patent teaches the formula taught therein (see claims 6 and 7 in the '272 patent).

Thus, the claims are rejected for reasons cited in the previous Office Action (mailed 12/3/04) and above.

Double Patenting

Claims 1-15, and 31-33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 and 10-14 of U.S. Patent No. 6,583,272 for the reasons cited in the previous Office Action (mailed 3/4/05) and incorporated by reference herein. Applicants argue that the '272 patent teaches an EPO conjugate with multiple pegylation rather than a single pegylation as in

the presently claimed invention and that infringement of the claims of the '272 patent would not necessarily mean infringement of the current claims. This argument has been considered but is not deemed persuasive because the EPO conjugates of claims 1, 2, 4, 5, and 8-9 have identical EPO moiety and identical structure of the PEG moiety as claims 1-4 of U.S. Patent No. 6,583,272 except that m has a wider range in the present claims. Thus, the present claims encompass the '272 patent instead of the reverse as applicants contend. In addition, contrary to Applicants assertion that infringement of the '272 patent claims would not necessarily mean infringement of the current claims, present Claims 1-15 and 31-33 are generic to all that is recited in claims 1-6 and 10-14 of U.S. Patent No. 6,583,272 and thus infringement of the '272 patent would mean infringement of the present claims. Claims 1-6 and 10-14 of U.S. Patent No. 6,583,272 fall entirely within the scope of Claims 1-6 and 8-15 and 31-33, or in other words, Claims 1-6 and 8-15 and 31-33 are anticipated by Claims 1-6 and 10-14 of U.S. Patent No. 6,583,272. Specifically, the EPO conjugates of claims 1, 2, 4, 5, and 8-9 have identical EPO moiety and identical structure of the PEG moiety as claims 1-4 of U.S. Patent No. 6,583,272 except that m has a wider range. Moreover, it would be inherent that the claimed conjugates of claims 1, 2, 4, 5, and 8-9 would have the same activity as the identical conjugates of claims 1-4 of the patent and the 'm' values of the patent are within the 'm' values of claims 1, 4, and 5 of the present application. The conjugate of Claim 6 of the patent is the compound of claim 3 of the present application when the glycoprotein is human EPO of Figure 1. The conjugate of claim 3 of the patent is the compound of claim 6 of the present application when R is methyl and the

compound of claim 8 of the present application. The sequence of figure 1 as claimed in claim 10 of the present application is identical to the sequence of SEQ ID NO:1 of claim 5 of the patent. In addition, the glycosylation patterns claimed in claims 10-14 of the patent are identical to those claimed in claims 11-15 of the present application. In addition, the conjugate of claim 2 of the patent is the conjugate of claim 7 of the present application when R is a methyl.

Thus, the rejection is maintained for the reasons cited above and in the previous Office Action.

Claim 16 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,583,272.

Applicants apply the same argument to Claim 16 as to the claims discussed above. Therefore, the examiner's response to those arguments is the same as above. As previously stated and contrary to Applicants assertions, Claim 1 of the '272 patent recites EPO conjugates that are fully encompassed by the conjugates contained in the composition of claim 16 of the present application. Claim 16 differs from claim 1 of the patent in that it discloses a pharmaceutical composition comprising the EPO conjugate and a pharmaceutically acceptable excipient. However, the portion of U.S. Patent No. 6,583,272 that supports the utility of the conjugates disclosed therein teaches that the conjugates may be formulated into pharmaceutical compositions containing the conjugate and a pharmaceutically acceptable excipient for treatment of anemia in the same manner as routine treatments using unmodified EPO (see Col. 2, lines 24-27, Col.

3, lines 7-10 and lines 32-35). Therefore, it would have been obvious to place the disclosed conjugates of the patent into a pharmaceutical composition to use in treating anemia as is routine for unmodified EPO. One having ordinary skill in the art would have been motivated to make such a pharmaceutical composition since the disclosed conjugates have an increased half-life and plasma residence time. Thus, the rejection is maintained.

New Rejections

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Bill et al. (Biochim. Biophys. Acta. (1995 Mar) 1261(1): 35-43). The disclosure of Bill et al. contains all of the limitations of Claims 24 and 25. Wen et al. (Blood (1993) Vol. 82, No. 5, pp. 1507-1516) provides evidence that the sequence of wild-type human erythropoietin, used in the Bill et al. reference, is identical to that of claims 24 and 25.

Bill et al. disclose a wild-type human recombinant erythropoietin glycoprotein (human EPO) fused at the N-terminus to a thrombin cleavage site (an N-terminal peptidic extension that is a proteolysis cleavage site) and GST (an N-terminal purification tag) (see p. 36-37, paragraph 2.2; p.37, Fig. 1; p. 38, paragraph 2.4). The

erythropoietin disclosed in Bill et al. is wild-type human recombinant erythropoietin and thus has a sequence identical to SEQ ID NO:1. Bill et al. teaches that the EPO gene had been cloned in humans and provides a reference that teaches its cloning and known sequence (p. 35, paragraphs spanning columns and McDonald et al. reference—ref. [2] of Bill et al.). Wen et al., referenced in Bill et al. (see ref. [4] of Bill et al.) provides the sequence of wild-type human erythropoietin which is identical to that of the present claims. Thus, Wen et al. provides evidence that the erythropoietin disclosed in Bill et al. has the sequence of the erythropoietin claimed. Bill et al. meets the limitations of Claims 24-25.

Conclusions

Claims 1-17, 24, 25, and 31-33 are rejected. Claims 18-23 and 26-30 are free of the prior art and in condition for allowance for the reasons cited in the previous Office Action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Schnizer whose telephone number is (571) 272-0958. The examiner can normally be reached on Monday through Wednesday from 8 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on (571) 272-0925. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Holly Schnizer
May 24, 2005